

# Delegation versus Communication in the Organization of Government

Rodney D. Ludema\*   Anders Olofsgård†

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## Abstract

When a government creates an agency to gather information relevant to policymaking, it faces two critical organizational questions: whether the agency should be given authority to decide on policy or merely supply advice, and what should the policy goals of the agency be. Existing literature on the first question is unable to address the second, because the question of authority becomes moot if the government can simply replicate its preferences within the agency. In contrast, this paper examines both questions within a model of policymaking under time inconsistency, a setting in which the government has a well-known incentive to create an agency with preferences that differ from its own. Thus, our framework permits a meaningful analysis of delegation versus communication with an endogenously chosen agent. The first main finding of the paper is that the government can do equally well with a strategic choice of agent, from which it solicits advice, instead of delegating authority, as long as the time inconsistency problem is not too severe. The second main finding is that the government may strictly prefer seeking advice to delegating authority if there is prior uncertainty with respect to what is the optimal policy. [Keywords: Political Economy, Delegation, Communication, Organizational Design, Time Inconsistency. JEL-codes: D02, D23, D73, D8, H1]

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\*Address: Edmund A. Walsh School of Foreign Service and Department of Economics, Georgetown University, 37th and O Streets, N.W., Washington DC, 20057. E-mail: ludemar@georgetown.edu. This paper was written while this author was visitor in the Economics Department at the University of British Columbia. Their generous support is acknowledged.

†Corresponding author. Address: Edmund A. Walsh School of Foreign Service and Department of Economics, Georgetown University, 37th and O Streets, N.W. Washington DC, 20057. E-mail: afo2@georgetown.edu.

# 1 Introduction

This paper is about delegation within organizations. More precisely, we ask the question of whether an uninformed principal would prefer to delegate decision-making authority to an informed agent or retain the decision power and only ask the agent for advice. Our question is general and can be applied to decision structures within all types of organizations, but we are particularly interested in the organization of public policymaking where governments regularly appoint agents to gather information necessary to make informed decisions. In some cases, the agent is given authority to decide on policy (e.g., a supreme court or central bank), and in other cases, the agent merely makes recommendations or reports findings to the government (e.g., an intelligence agency or investigatory commission). What criteria determine a principal's choice between these organizational forms? Previous work on this question (e.g., Aghion and Tirole, 1997; Aghion, Dewatripont and Rey, 2002; Dessein, 2002) found that preference differences between the principal and agent play a key role. However, as the above examples suggest, the principal can often shape the agent's preferences by choosing whom to appoint. This poses a problem for the existing literature because, if the principal simply appoints an agent who shares her preferences exactly, the organizational form becomes irrelevant. To make headway, therefore, we need a model in which the principal has a reason to choose an agent with preferences different from her own. For that reason, we examine delegation versus communication in a simple model of policymaking with time inconsistency (Kydland and Prescott, 1977).

By addressing delegation and communication in a setting of time inconsistency, we tie together two strands of the delegation literature that have heretofore been separate. The literature on “strategic” delegation views delegation as a means for a principal to commit to a course of action in environments of time inconsistency. It is normally modeled as a two-stage game of complete information: in the first stage, the principal appoints an agent from a set of potential agents, differing by type; in the second stage, the agent plays a game with other players (possibly other agents). Generally, the principal chooses an agent with a type different from her own. Applications have ranged from oligopoly (Vickers, 1985) and central bank independence (Rogoff, 1985) to representative democracy (Persson and Tabellini, 1994; Besley and Coate, 2001). In the political economy literature delegation is thus generally seen as efficiency enhancing and the outcome of a political

decision by a government intended to improve on the quality of policy making.

The second, and more recent, strand of literature treats delegation as a means of addressing informational asymmetries within an organization. In Dessein (2002), for example, the uninformed principal can either delegate or communicate with an informed agent of a given type. If the two players have different types, communication is noisy. Thus, the principal faces a trade-off between making the decision herself based on noisy information (communication) and having an agent decide based on perfect information but bad preferences (delegation). Dessein finds that delegation is preferred when the distance between the principal and agent is positive but not too large. If the two have the same type, the first best is achieved regardless of the delegation decision.

There are numerous reasons why linking these two views of delegation adds value, and why it makes sense in the political realm. First, given the importance of preference differences to the informational delegation literature, it is important to analyze how and why these differences arise within a unified framework. Second, given that organizations involved in strategic situations almost always stand to benefit from strategic delegation, it is worth asking whether this reinforces or weakens the case for delegation based on informational asymmetries. Third, the basis of all delegation theory is a rather strong (however plausible) assumption about contract incompleteness, namely, that contracts cannot be written on actions but tasks (or more generally, property rights) can be contractually assigned. Permitting the principal to choose the type of agent to assign with a task considerably lightens the burden of this assumption and allows for the study of a far richer array of organizational forms.

Finally, there are many public policy applications where time-inconsistency and informational asymmetries are both present and where diversity in organizational design is observed. In macroeconomics, high inflation and large public debts are often associated with time inconsistency, but while monetary policy gets delegated to independent central banks, with a preference for price stability, agencies involved in fiscal policy tend to provide only budget estimates or recommendations (Wyplosz, 2005). In international trade, governments rely on commissions to investigate anti-dumping, countervailing duties and safeguards cases, purportedly to maintain the consistency of such policies in the face of political pressure. In the EU, the European Commission investigates such cases and makes recommendations to the Council of Ministers. In the US, the International Trade Commission (ITC) investigates and recommends to the President on safeguard cases; however,

in anti-dumping and countervailing duties cases, the ITC is decisive.<sup>1</sup> Thus, the choice between delegation and communication may vary not only between organizations serving the same function but also between different policy functions of the same organization. Finally, it is worth noting that central banks, courts, investigatory commissions, etc., besides gathering information and differing in organizational form, all have the feature that they are intended to be independent of the government. To insure independence, steps are taken to insulate the agency from government intervention after the initial appointment, such as limiting the government's oversight, guaranteeing the agency's funding, or granting lengthy terms of office.<sup>2</sup> Thus, it is reasonable to think of such agencies as having their *preferences* but not their *actions* determined by the government.

To analyze our question we extend a simple time inconsistency model to incorporate delegation and communication. The players of the game are the government, a public agency (agent), and a firm. The firm faces a decision of whether or not to invest in a project that is profitable if and only if it is "protected" (e.g., with a subsidy or tariff) by the government.<sup>3</sup> The government cares about profits, and thus benefits from providing protection, but it also cares about the cost of protection borne by the public (e.g., dead-weight loss), which we take to be a random variable. The optimal decision rule for the government, therefore, is to protect only when the cost of protection is below a certain threshold level. However, the threshold for protection is lower *ex ante*, before the firm sinks its investment, than *ex post*. That is, there are costs of protection for which government would refuse protection *ex ante* but would be unable to resist protecting *ex post*, which is akin to a "soft budget" problem.<sup>4</sup> On top of this, the government faces an informational problem: the agency and the firm observe the realized cost of protection, but the government does not. To deal with these problems, the government chooses an agent, prior to the firm's investment decision, from a continuum of possible agents differing according their relative valuation of profits. The government can either entrust the protection decision to the agent (delegation) or make the decision itself based

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<sup>1</sup>The President also appoints the commissioners to ten-year terms.

<sup>2</sup>The literature has suggested two reasons why this kind of commitment might be valuable to the government. One is provide the agent with the proper incentive to gather information (e.g., Aghion and Tirole, 1997). The other is to enable the adoption of a policy that the government might prefer *ex ante* but may not care to adopt *ex post*, i.e., time-inconsistency. This second direction is the one taken in this paper.

<sup>3</sup>The mechanism we develop can be applied to many policy contexts, not only to firm subsidies. Aid policy in the presence of "the Samaritans dilemma" is one example, monetary policy another.

<sup>4</sup>Our model can easily be tweaked to analyze the opposite case, known as a "hold up" problem. In this case, if there is a large public benefit to investment, the government might like to announce a generous protection plan *ex ante* to induce investment but be unwilling to deliver protection *ex post*. All of our analysis extends readily to this case.

on information provided by the agent (communication).

If the government is certain about its optimal policy at the time it designs the agency, it is straightforward to show that delegation to the agent can solve both of the government's problems: simply appoint an agent whose ex post decision rule is the same as the government's ex ante rule. Given the soft budget problem, this means choosing an agent that cares less about profits (and thus is less protectionist) than the government. Yet, the first main contribution of the paper is to show that if the time-consistency problem is not too severe, then communication achieves the same outcome as delegation. The reason is that an agent who cares less about profits than the government will endogenously bias the information it sends in such a way that the government in equilibrium, based on this information, will have a less generous ex post decision rule than if the government and the agent shared the same preferences. Thus the government, by selecting a less protectionist agent, commits to receiving information that makes the government itself behave in a less protectionist manner ex post. To borrow the terminology of Aghion and Tirole (1997), the delegation of formal authority here is irrelevant, because the *real* authority is in the hands of the agent who controls the information. Hence, delegating formal authority is not necessary. This result echoes that of Olofsgård (2004, 2006).

However, as in all games of communication, signals will only be credible if the preference distance between the sender and the receiver is not too large. Therefore, if the time inconsistency problem is too large, an agent with an ex post threshold equal to the government's ex ante threshold will not be deemed as credible by the government ex post, causing the government to make its decision based only on its prior. In this case the best the government can do is to assign the most biased agent that can still signal with credibility. This will result in too much investment, and thus delegation dominates communication.

The second contribution of the paper is to show how incentives may change if the government, at the point of time when it decides on the organization and appointment of the agent, is uncertain about what it will consider to be the optimal policy. What we have in mind here is the common situation that the government may know what policy it prefers from an ideological perspective, but public opinion may force it to deviate from that since the government also cares about getting reelected. For instance, if media coverage of the local effects on jobs of a plant closing creates an electoral backlash in an important swing state then the government may choose to offer protection

even if it goes against its ideology. On the other hand, if the government gets accused of pandering to the corporate elite it may have to refrain from subsidies it would otherwise have paid out. These political shocks are hard to predict, though, both in terms of magnitude and direction. It follows, at a generic level, that the government is uncertain of the final preference distance between itself and the agent at the time the latter is appointed, and that it must take the possibility of political shocks into account in his choice of both design and identity of the agent.<sup>5</sup> In the presence of these shocks the benefit of delegation decreases, since the uncertain political outcome must be accommodated in the choice of agent. On the other hand, communication makes it possible to ignore the advice of the agent when politics weigh heavily. This makes accommodation in the choice of agent less necessary. Hence, the government now faces a potential strict benefit from the discretionary power to ignore the will of the agent. This benefit must then be compared with the loss due to lack of credible communication that may also arise. We show that this basic trade off leans more towards delegating authority when the magnitude of the time inconsistency problem is large, and more towards communication when political uncertainty is large.

Overall our results are notably different than those of the previous literature. Whereas previous work found communication is preferred to delegation when the preference difference between principal and agent is large, we find just the opposite. In our model, large preference differences are created by severe time inconsistency. This is also when delegation tends to be preferred to communication. Thus, endogeneity in the choice of agent is crucial for establishing the relative ranking of the two modes of organization.

The remainder of this paper is organized as follows. In Section 2, we lay out our model and discuss the time inconsistency problem. In Section 3, we solve the model with no political uncertainty, first for the case of delegation, and then for the case of communication with a well-chosen expert. A comparison of these cases produces our first main result. In Section 4, we add uncertainty about the political pressure faced by the government and once again compare delegation and communication. This section yields our second main result. Section 5 concludes.

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<sup>5</sup>The political science literature has since long argued that delegation within politics may also be motivated by less benevolent reasons than time inconsistent preferences or asymmetric information (see Epstein and O'Halloran 1999 for a survey). This has also more recently been picked up in the economics literature. For instance, Alesina and Tabellini (2005) show in a model with career concerned bureaucrats and politicians motivated by re-election that the politicians prefer to delegate tasks that are risky, have negative rents and which bring little campaign contributions, whereas they prefer to retain decision power over redistributive tasks. Our politicians are generally less cynical, but political shocks may still bring a wedge between their preferences and those of the bureaucrats.

## 2 The Model

There are three players in the model; the government ( $g$ ), the agent ( $a$ ), who is chosen endogenously from a large pool of potential agents, and the firm ( $f$ ). The game proceeds in four stages: design, investment, communication and protection. In the design stage, the government selects an agent and either grants the agent authority over the protection decision or retains the authority for itself. Following this, two vital pieces of information are revealed: the political pressure faced by the government to support the firm, and  $c$ , the cost of granting protection. All players learn the former, while the latter is revealed only to the agent and the firm. In the investment stage, the firm decides whether or not to make an irreversible investment in some project. If the government retains authority, then the game moves to the communication stage (otherwise, this stage is skipped), in which the agent sends a message  $m$  to the government, and the government updates its beliefs about  $c$ . Information is assumed to be soft, and no constraints are imposed on the set of messages that can be sent. Finally, in the protection stage, either the government or the agent, depending on the design, chooses whether or not to protect the firm, at which point all payoffs are realized. The solution to this game is a perfect Bayesian equilibrium.

### 2.1 Payoffs

We assume the firm has a single, indivisible unit of capital that it must decide to invest or not invest in a particular project. The firm's choice is denoted  $I \in \{investment, no\ investment\}$ . Investing in the project earns the firm  $p + \sigma$ , where  $p$  is a fixed return and  $\sigma$  is the level of protection provided by the government/agent. Protection can take on one of two values,  $\sigma \in \{0, 1\}$ . If the firm does not invest in the project, it earns a guaranteed return of  $r$ . The profit function of the firm is thus given by,

$$\pi(I, \sigma) = \begin{cases} p + \sigma & \text{if } I = investment \\ r & \text{if } I = no\ investment \end{cases} \quad (1)$$

We assume  $p + 1 > r \geq p$ . Thus, investment in the project is profitable if and only if protection is positive.

The government cares about the profits of the firm as well as about the cost that protection imposes on the public. The weight the government assigns to  $\pi$  relative to  $c$  in its objective function

is given by the parameter  $\beta_g$ . This weight reflects the government's ideology, i.e. how it sees itself to best represent the general welfare (the policy dimension), but the weight can also change as a function of shocks that influence the political cost-benefit calculation of protection. It follows that the realization of  $\beta_g$  is random.<sup>6</sup> The government's utility function is therefore,

$$U_g(I, \sigma) = \beta_g \pi(I, \sigma) - \sigma c \quad (2)$$

All potential agents have the same utility function as the government, differing only in the weight assigned to  $\pi(\cdot)$ , which we denote  $\beta_a$ . We assume the government can choose  $\beta_a$  to be any value on the interval  $[0, 1]$ . This assumption can be interpreted in two ways. One is to think of it literally as though the government is appointing agents according to their ideology,  $\beta_a$ . The other interpretation is that the government assigns the agent with a task and a rule for how to decide (act as if you had my preferences but with weight  $\beta_a$ ).<sup>7</sup> The important part though is that the agent is truly independent. In the first case this means that his preferences are not affected by political pressure. In the second case it means that the government cannot in the short to medium term change the specification for how the agent should decide (think for instance of an inflation target assigned to an independent central bank). Hence, the politician can only affect the actions of the agent through the appointment process, and the agent acts in accordance with what is expected from him at that stage. The set-up can thus encompass both the view that bureaucrats are motivated by their own ideological preferences, and that they are motivated by career concerns, or a public servant code of honour, to perform their task in accordance with their assigned mission.

The two random variables of the model,  $c$  and  $\beta_g$ , are also drawn from the unit interval. The cost of protection has a continuous probability distribution  $G$ , with density  $g$  and mean  $\bar{c}$ , while  $\beta_g$  is drawn from the distribution  $H$ , with density  $h$ .

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<sup>6</sup>Note that this does not mean that the principal does not know his own preferences, just that political shocks, unknown ex ante, influence what is the best alternative ex post.

<sup>7</sup>Although the delegation literature generally assumes that only property rights are contractible, this can be relaxed slightly in our model. By allowing contracts to be written on the choice of  $\sigma$  or on the outcome  $\pi(\sigma) + b$ , we could interpret  $\beta_a$  as part of an incentive contract.



## 2.2 Optimal Decision Rules

Next we compare the optimal decision rules of the government before and after investment. The purpose is to clarify the time inconsistency problem and to establish the first-best benchmark. By “decision rule” we mean a mapping from triplets  $(I, c, \beta_g)$  to policy choices  $\sigma$ . An optimal decision rule is a statement about how the government would like to see the policy implemented, putting aside the issues of who implements it or how the necessary information is obtained.

If the investment has already been made, the government obtains a payoff of  $\beta_g(p + 1) - c$  by protecting the firm and  $\beta_gp$  by not protecting. Comparing these to outcomes, it follows that protection is preferred if and only if,

$$c \leq \beta_g \quad (3)$$

This defines the optimal ex post decision rule: protect whenever the cost of protection is below the threshold defined by the government’s political pressure parameter  $\beta_g$ .

In a similar way we can find the government’s optimal ex ante decision rule. With protection, the firm invests and the government receives  $\beta_g(p + 1) - c$ . Without protection, the firm does not invest and the government receives  $\beta_gr$ . Thus, the government’s optimal ex ante decision rule is to protect if and only if,

$$c \leq \alpha\beta_g \quad (4)$$

where  $\alpha \equiv 1 - (r - p)$ .

If  $\alpha \neq 1$ , then there exists a time inconsistency problem, in that the government would like to commit ex ante to a different decision rule than it would like ex post. It follows from our assumptions that  $\alpha \leq 1$ . This means that the government is more protectionist ex post than ex ante, which is, in effect, a soft budget problem.<sup>8</sup> For all costs in the interval  $[\alpha\beta_g, \beta_g)$ , the government would like protection ex post but not ex ante. If the firm anticipates the ex post rule, it would invest against the government’s wishes. The severity of the time inconsistency problem can be measured by  $(1 - \alpha)$ .<sup>9</sup>

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<sup>8</sup>For a thorough discussion of the soft budget problem, see Kornai, Maskin and Roland, 2003.

<sup>9</sup>To get the holdup problem we need that  $\alpha > 1$ . This can be derived by assuming that there is an additional social benefit from investment of  $b \cdot \beta_g$ , where  $b > r - p$ . This would yield that  $\alpha \equiv 1 + b - (r - p) > 1$ . The analysis of this type of problem is essentially the same as the problem we consider. We have chosen to leave out the holdup case for the sake of brevity.

### 3 Organizational Design without Political Uncertainty

The government would like to implement its optimal ex ante decision rule. To achieve this, however, it must either relinquish decision-making authority or remain, at least partially, uninformed. If it retains authority and becomes fully informed, it will follow its optimal ex post decision rule, which is generally suboptimal. In this section, we examine these two alternatives in detail. Throughout the section, we assume  $H$  to be degenerate, postponing any actual political uncertainty until Section 4.

#### 3.1 Delegation

It is straightforward to see how delegation of authority to the agent can solve both the time-inconsistency and the asymmetry of information problems. Even though the government does not know the realized cost of protection, it knows that the agent knows. It also knows that the agent's optimal ex post decision rule is to protect whenever the cost of protection is no greater than  $\beta_a$ . To implement its optimal ex ante decision rule, therefore, the government simply appoints the agent whose ex post cost threshold equals the government's ex ante cost threshold. The optimal choice of agent is thus

$$\beta_a^D = \alpha\beta_g. \tag{5}$$

Hence, in the presence of a soft budget problem, the optimal agent cares relatively less about profits than does the government.

#### 3.2 Communication Equilibrium

In this subsection we look at the case when the government retains decision power and seeks advice from the appointed expert. This corresponds to the common use of public agencies and congressional committees as institutions of expertise rather than actual decision-making bodies. However, as in all games of communication, there is no way to guarantee that the information conveyed by the agent is true, so the government must take the agent's incentives for misrepresentation into consideration when evaluating the actual informational value of the message.

We will follow the common approach within communication games to focus on equilibria in which the agent partitions the support of  $c$  into intervals and truthfully reports in which interval

the actual realization of  $c$  lies. The messages are thus correct but imprecise, in the sense that the realization of the point estimate is not revealed. Following Olofsgård (2004), we restrict attention to an equilibrium of the communication game in which the agent partitions the support of  $c$  into two parts. One part contains realizations such that the agent prefers to protect the firm,  $c \in [0, \beta_a]$ , and the other, realizations such that it prefers to abstain from protection,  $c \in [\beta_a, 1]$ . Then the agent reports in which of these two partitions the actual realization of  $c$  lies. We will therefore refer to the agent's equilibrium strategy as being a truthful recommendation, based on his preferences, of the level of protection, labeled as  $m \in \{0, 1\}$ .<sup>10</sup>

**Definition 1** A *Truthful perfect Bayesian equilibrium* has the following set of strategies and beliefs.

1. The agent truthfully signals its preferred level of protection.

$$m = \begin{cases} 1 & \text{if } c \in [0, \beta_a] \\ 0 & \text{if } c \in (\beta_a, 1] \end{cases} \quad (6)$$

2. The government updates its beliefs based on the message according to Bayes' Rule.

$$E[c \mid m] = \begin{cases} \bar{c}_1(\beta_a) & \text{if } m = 1 \\ \bar{c}_0(\beta_a) & \text{if } m = 0 \end{cases} \quad (7)$$

where  $\bar{c}_1(\beta_a) \equiv \int_0^{\beta_a} \frac{cg(c)}{G(\beta_a)} dc$  and  $\bar{c}_0(\beta_a) \equiv \int_{\beta_a}^1 \frac{cg(c)}{1-G(\beta_a)} dc$ .

3. The government protects the firm according to,

$$\sigma_g = \begin{cases} 1 & \text{if } E[c \mid m] \leq \beta_g \\ 0 & \text{if } E[c \mid m] > \beta_g \end{cases} \quad (8)$$

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<sup>10</sup>Note that we are not imposing any restrictions on the possible strategies, which can take many different forms. We are just describing a certain equilibrium. The reason for the existence of this relatively simple equilibrium is that the decision space of the government is binary, whether to protect the firm or not. As in all communication games, though, there are multiple equilibria (at least unless refinements of the Perfect Bayesian equilibrium solution concept are not applied). However, in this case it can be shown that all informative equilibria are pay-off equivalent in the sense that they only differ in terms of the signaling strategy of the agent, which doesn't enter directly into the utility functions (see Olofsgård 2004). Crawford and Sobel (1982) refer to these equilibria as economically equivalent. Hence, one can think of the single-partition equilibrium as being representative of this class of informative equilibria. There do exist non-informative (babbling) equilibria as well though.

4. The firm invests according to,

$$I = \begin{cases} \textit{investment} & \textit{if } c \in [0, \beta_a] \textit{ and } \bar{c}_1(\beta_a) \leq \beta_g \\ \textit{no investment} & \textit{if } c \in [0, \beta_a] \textit{ and } \bar{c}_1(\beta_a) > \beta_g \\ \textit{investment} & \textit{if } c \in [\beta_a, 1] \textit{ and } \bar{c}_0(\beta_a) \leq \beta_g \\ \textit{no investment} & \textit{if } c \in [\beta_a, 1] \textit{ and } \bar{c}_0(\beta_a) > \beta_g \end{cases} \quad (9)$$

Based on the signal from the agent, the government updates its beliefs about the actual value of  $c$  taking into account the agent's incentives. It does this by truncating its prior either on the right (if the agent recommends protection,  $m = 1$ ) or on the left (if the agent recommends no protection,  $m = 0$ ) at  $\beta_a$ . This produces a posterior expected cost of protection of either  $\bar{c}_1(\beta_a)$  or  $\bar{c}_0(\beta_a)$ , respectively. The government's protection decision is made by comparing the posterior expected cost of protection with the ex post cost threshold,  $\beta_g$ . Finally, since the firm knows  $c$ , it is capable of calculating the equilibrium level of protection. The firm invests if it anticipates protection and does not invest otherwise.

Does the government actually follow the agent's advice? That is, does the government protect when the agent is for it, and not protect when the agent is against it? This depends on the preferences of both the agent and the government, because  $\beta_a$  determines the posterior expectation of  $c$  and  $\beta_g$  determines the ex post cost threshold. What is certain, however, is that no matter what the agent's type, the government's posterior expectation of  $c$  is lower if the agent recommends protection than if it does not. Thus, it is never an equilibrium for the government to diametrically oppose the agent (i.e., choose  $\sigma_g = 0$  when  $m = 1$ , and  $\sigma_g = 1$ , when  $m = 0$ ). The government will either follow the agent's advice or ignore the agent entirely.

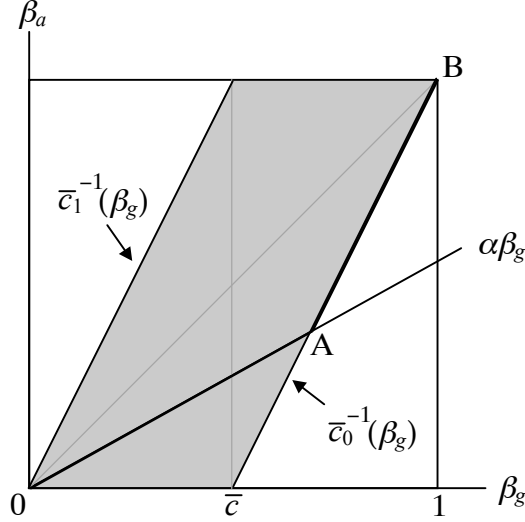


Figure 1.

From equations 7 and 8, we see that the government follows the agent's advice if and only if,  $\bar{c}_1(\beta_a) \leq \beta_g \leq \bar{c}_0(\beta_a)$ . This result is illustrated in Figure 1. The combinations of preferences for which the government follows the agent's advice is the shaded region. For points to the right of the shaded region, where the government is highly protectionist relative to the agent, the government offers protection, regardless of the agent's advice. To the left of the shaded region, the government never protects, regardless of the agent's advice. We shall refer to the shaded region as the *credible communication set* (CCS). This is not to suggest that the agent would lie if the preferences were outside of this set. Rather, it is the set in which the agent can credibly signal information that *affects the behavior* of the government. Outside the set, even though it may update its beliefs based on the agent's message, the government always behaves in accordance with its priors, i.e., protects if and only if,  $\bar{c} \leq \beta_g$ .<sup>11</sup> Figure 1 is drawn for the special case where  $c$  is distributed uniformly. In

<sup>11</sup>It is worth noting that the government can always choose an expert that lies outside of the CCS, and thereby effectively commit itself to ignoring the agent. Thus, it has effectively three options: delegate, communicate, or "go it alone" in ignorance. Most of the literature considers only first two, while Li and Suen (2004) considers the first and third. Thus a benefit of our modeling approach (i.e, the endogenous choice of agent) is that it gives the government a fuller range of options.

this case, the prior expected cost of protection is  $\bar{c} = \frac{1}{2}$ , the posterior expectation is,

$$E[c \mid m] = \begin{cases} \frac{\beta_a}{2} & \text{if } m = 1 \\ \frac{1+\beta_a}{2} & \text{if } m = 0 \end{cases} \quad (10)$$

and the CCS is given by  $\beta_a \leq 2\beta_g \leq 1 + \beta_a$ . For general distributions, the boundaries of the CCS are nonlinear; however, they retain the main characteristics shown in the diagram. In particular,  $\bar{c}_1^{-1}(\beta_g)$ , which represents the most protectionist agent that can credibly induce the government to protect, is continuous and monotonically increasing from 0 to 1 on the interval  $[0, \bar{c}]$ . Likewise,  $\bar{c}_0^{-1}(\beta_g)$ , the least protectionist agent that can credibly induce the government not to protect, is continuous and monotonically increasing from 0 to 1 on the interval  $[\bar{c}, 1]$ . Neither boundary may cross the diagonal, as this would imply the government would ignore the advice of a like-minded agent.

### 3.3 Choosing an Expert

Next consider the optimal choice of agent. We have already seen that if the government delegates, the optimal agent is obtained by setting  $\beta_a = \alpha\beta_g$ , and this agent is ideal in that it implements the optimal ex ante decision rule of the government. This solution is drawn in Figure 1 as a ray from the origin with slope  $\alpha$ . The ray lies below the diagonal ( $\alpha < 1$ ), since we are here focusing on a soft budget problem. If the government were to choose the agent from along this ray, it would follow the resulting advice only if the agent is in the CCS, i.e., on segment OA. If this is the case, then the government can appoint the ideal agent ex ante, follow its advice ex post, and thereby implement its optimal ex ante decision rule. Communication with a well-chosen expert, therefore, produces the exact same outcome as delegation to a well-chosen decision-maker.

If  $\beta_g$  is so large that the corresponding ideal agent is not on segment OA, then the government cannot appoint the ideal agent and follow its advice. Put differently, if the ideal agent cares too little about profits relative to the government, it cannot credibly signal information that would lead the government to refuse protection. The government has two alternatives. One would be to go ahead and appoint an agent outside the set, ignore the agent's advice, and decide on the basis of his priors. Since the range of  $\beta_g$  in which this problem arises is such that  $\beta_g > \bar{c}$ , this appointment strategy

would lead the government to protect regardless of the agent's advice. The second alternative is to choose  $\beta_a = \bar{c}_0^{-1}(\beta_g)$ , which is the least protectionist agent whose advice the government would follow. It lies on the boundary of the shaded region, on segment AB. In this case, the government protects for  $c \in [0, \bar{c}_0^{-1}(\beta_g)]$ . This is a more protectionist decision rule than is optimal ex ante, but it is better than protecting all the time. Thus the second alternative is superior to the first. Nonetheless, since it does not always implement the optimal ex ante decision rule, delegation is strictly preferred to communication.

Although the graphical analysis above was based on the uniform case, we can draw several general conclusions that hold for any distribution of  $c$ . First, the government's optimal choice of expert under communication is given by

$$\beta_a^C = \max [\alpha\beta_g, \bar{c}_0^{-1}(\beta_g)]. \quad (11)$$

That is, the government opts for either the ideal agent or the least protectionist agent whose advice it can trust, whichever is more protectionist.

Second, for any given  $\beta_g$ , we can partition the range of  $\alpha$  into two parts: one in which the government implements its optimal ex ante decision rule under communication and thus is indifferent between communication and delegation; the other in which it cannot implement its optimal ex ante decision rule under communication and thus strictly prefers delegation to communication. *Moreover, delegation is strictly preferred only when the time inconsistency problem is sufficiently severe.* This is the content of the following proposition.

**Proposition 1** Under communication, for all  $\alpha \geq \bar{c}_0^{-1}(\beta_g)/\beta_g$ , the government chooses the ideal agent  $\beta_a^C = \alpha\beta_g$  and implements the optimal ex ante decision rule. If  $\alpha < \bar{c}_0^{-1}(\beta_g)/\beta_g$ , then the government chooses the least protectionist agent it can follow,  $\beta_a^C = \bar{c}_0^{-1}(\beta_g)$ , and strictly prefers delegation to communication.

A third conclusion is that communication is undermined only if the government has protectionist priors. This is intuitive, because a government that is already inclined to protect relies on the agent for information about when not to protect. An agent that cares very little about profits (which is necessary to solve a severe soft budget problem) almost always recommends against protection, so he

cannot have enough influence on the government's beliefs to change its behavior.<sup>12</sup> Finally, we can measure the expected loss of government utility from using communication instead of delegation. In general, any credible agent  $\beta_a$  confers an expected loss on the government, relative to the optimal ex ante decision rule, of

$$\Lambda(\beta_a) = [\alpha\beta_g - \bar{c}_0(\alpha\beta_g)] G(\alpha\beta_g) - [\alpha\beta_g - \bar{c}_0(\beta_a)] G(\beta_a). \quad (12)$$

The two terms in (12) measure the net expected government benefit from protection, multiplied by the probability of protection, given the ideal agent and  $\beta_a$ , respectively. Evaluating  $\Lambda(\beta_a)$  at  $\beta_a^C$  gives the expected loss from communication.

In the uniform case  $\Lambda(\beta_a)$  simplifies to

$$\Lambda(\beta_a) = \frac{1}{2} (\alpha\beta_g - \beta_a)^2. \quad (13)$$

Based on equation (13) we can calculate the expected loss from communication in equilibrium as follows.

**Proposition 2** The expected loss from communication when  $G$  is uniform is given by

$$\Lambda(\beta_a^C) = \begin{cases} \frac{1}{2} \left( \alpha - 2 + \frac{1}{\beta_g} \right)^2 \beta_g^2 & \text{if } \beta_g > 1/(2 - \alpha) \\ 0 & \text{if } \beta_g \leq 1/(2 - \alpha) \end{cases} \quad (14)$$

To conclude this section, we note that our results contrast markedly with Dessein (2002), who finds that delegation is preferred when the preference difference between the principal and agent is positive but not too large. The reason for Dessein's result is that both the quality of the information under communication and the quality of the decision-making under delegation deteriorate as the preference difference between principal and agent grows. It so happens that the information deteriorates faster at first but is eventually surpassed by the deterioration of decision-making. To compare this with our model, suppose we had an exogenous agent whose type lay between that of the government and the ideal agent. As the preference difference between the government and agent grows, the quality

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<sup>12</sup>On the other hand, a sufficiently severe hold up problem (which would require a more protectionist agent) cannot be solved completely by communication if the government would choose not to protect the firm on the basis of its liberal prior.



of the information under communication may deteriorate but the quality of the decision-making under delegation improves (up to the point of the ideal agent). Thus, if the preference difference between the government and the ideal agent is large enough, the ability to choose the agent makes delegation superior. We conclude that the relative merits of communication and delegation depend strongly on the underlying reason for the preference difference between the principal and agent.

## 4 Political Uncertainty

The previous section showed that delegation is always weakly preferred to communication and sometimes strictly preferred. Why then do we observe communication in environments where the agent's type can be chosen by the government? In this section, we explore one possible explanation, namely, uncertainty about the optimal decision rule at the design stage. We first look at the simplest case, in which  $\beta_g$  is a binary random variable, in order to illustrate the underlying intuition as clearly as possible. We then turn to a case with a continuous distribution of political pressure to derive more general results.

### 4.1 Two States of Political Pressure

In this section we assume that the cost of protection is distributed uniformly and that the parameter  $\beta_g$  can take on one of two values,  $\beta_g = \bar{\beta} + \epsilon$  or  $\beta_g = \bar{\beta} - \epsilon$ , with equal probability. At the time the government appoints the agent, only  $\bar{\beta}$  is known. After the appointment of the agent,  $\beta_g$  is realized and becomes known to all players. Equivalently, we could assume there are two separate projects, identical except for  $\beta_g$ , and the government must appoint a single agent to either administer protection or report on both projects.

Under delegation of authority the government selects an agent so as to minimize the expected loss relative to the optimal ex ante decision rule

$$\Lambda(\beta_a) = \frac{1}{2} \int_{\beta_a}^{\alpha(\bar{\beta}+\epsilon)} [\alpha(\bar{\beta} + \epsilon) - c] g(c) dc - \frac{1}{2} \int_{\alpha(\bar{\beta}-\epsilon)}^{\beta_a} [\alpha(\bar{\beta} - \epsilon) - c] g(c) dc.$$

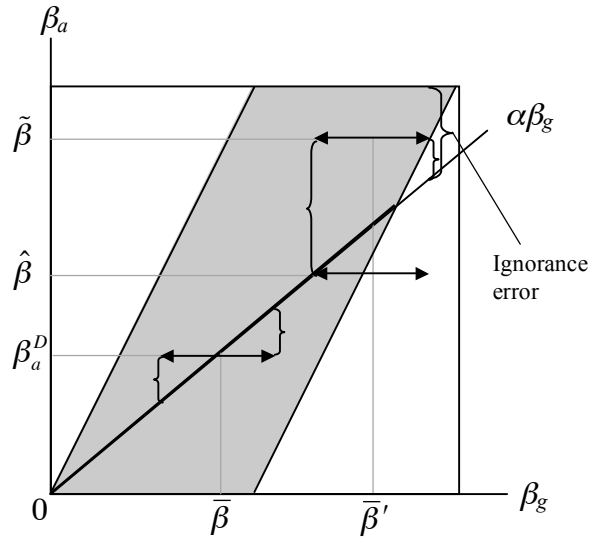
For uniform  $G$ , this becomes

$$\Lambda(\beta_a) = \frac{\alpha^2 \epsilon^2}{2} - \frac{1}{2} (\alpha \bar{\beta} - \beta_a). \quad (15)$$

The results in the following proposition follow directly from equation (15).

**Proposition 3** In the case of uniform  $G$  and a binary state of political pressure, the optimal agent under delegation is given by  $\beta_a^D = \alpha\bar{\beta}$ . The expected loss of over- and under-protection is given by  $\Lambda(\beta_a^D) = \frac{\alpha^2\epsilon^2}{2}$ .

A graphical representation of this problem can be seen in Figure 2. Suppose the average government weight is  $\bar{\beta}$ . The government's choice of  $\beta_a$  determines the position of the horizontal line segment directly above  $\bar{\beta}$  in the figure. The width of this segment is  $2\epsilon$ . Its endpoints are  $(\bar{\beta} + \epsilon, \beta_a)$  (right arrow) and  $(\bar{\beta} - \epsilon, \beta_a)$  (left arrow), corresponding to the two possible states that follow the choice of the agent. As drawn, both of these endpoints lie off the ray  $\alpha\beta_g$ . The distance between each endpoint and the ray measures the error from having the “wrong” agent in each state. As the government's ex ante utility loss is a quadratic function of this distance, minimizing the expected loss entails choosing  $\beta_a$  so as to equalize the distance from the ray at the two endpoints. This is achieved by setting  $\beta_a = \alpha\bar{\beta}$ .



**Figure 2.**

If instead of delegating authority the government seeks advice, the solution is unchanged for the case of  $\bar{\beta}$ . This is because the two endpoints of the segment lie in the shaded region, so the government will follow the agent's advice in both states. However, in the case of  $\bar{\beta}'$ , this is not true.

Setting  $\beta_a = \alpha\bar{\beta}'$  would imply that the government would not follow the agent's advice in the state  $\bar{\beta}' + \epsilon$ .

As before the government has two options. One is to choose  $\beta_a$  high enough so that the right endpoint lies on the boundary of the CCS, i.e.,  $\beta_a = 2(\bar{\beta}' + \epsilon) - 1 \equiv \tilde{\beta}$ . This implies a relatively small error in the high state but a large error in the low state. As drawn in Figure 2, both of these errors are due to the agent being more protectionist than the government's optimal decision rule in the corresponding state. However, this is only true if  $\tilde{\beta} > \alpha\bar{\beta}'$ . Otherwise, the agent is more protectionist in the low state and less protectionist in the high state than the government's optimal decision rule. But, even in this case the errors are not equalized. Thus, the expected loss is unambiguously higher at  $\tilde{\beta}$  than under delegation. The second option for the government is to choose  $\beta_a$  low enough that the left endpoint lies at  $\alpha\beta_g$  while the right endpoint lies outside the CCS. That is, set  $\beta_a = \alpha(\bar{\beta}' - \epsilon) \equiv \hat{\beta}$ . Thus, if the low state occurs, the agent advises the government to follow its optimal ex ante decision rule and the government heeds this advice. Both the asymmetric information and the time inconsistency problems are solved, and there is zero loss. However, in the high state, the government ignores the agent's advice and protects. This is equivalent to choosing  $\beta_a = 1$  in the high state. Thus, we can measure the error by the distance between 1 and  $\alpha(\bar{\beta}' + \epsilon)$ , labeled as the "ignorance error" shown in the figure. The expected loss is,

$$\hat{\Lambda} = -\frac{1}{2} \int_{\alpha(\bar{\beta}'+\epsilon)}^1 [\alpha(\bar{\beta}' + \epsilon) - c] g(c) dc \quad (16)$$

which under uniform gives,

$$\hat{\Lambda} = \frac{1}{4} [1 - \alpha(\bar{\beta}' + \epsilon)]^2 \quad (17)$$

Which of the two options would the government choose? In the previous section, the government always chose the first option. That is, it preferred a constrained agent whose advice it could follow to one it would ignore. Here it is different, because the agent is ignored in the high state but is ideal in the low state. Thus, it is entirely possible that the loss under  $\hat{\beta}$  is smaller than under  $\tilde{\beta}$ .

However, the more important comparison is between  $\hat{\beta}$  and the optimal choice under delegation of authority. This tells us whether or not it is possible for the government to actually prefer communication to delegation. We have already noted that delegation is preferred to seeking advice from agent  $\tilde{\beta}$ . Thus, if the government were to choose  $\tilde{\beta}$  over  $\hat{\beta}$ , communication could never be

strictly preferred to delegation. Thus, the only interesting question that remains is whether it is better to delegate or communicate with an agent the government intends to ignore in the high state. Communication is strictly preferred if  $\hat{\Lambda} < \Lambda(\beta_a^D)$ . Solving this yields the following result.

**Proposition 4** Communication is strictly preferred to delegation when  $\epsilon > \tilde{\epsilon}(\alpha, \bar{\beta}') \equiv (\frac{1}{\alpha} - \bar{\beta}') / (1 + \sqrt{2})$ .

The threshold  $\tilde{\epsilon}(\alpha, \bar{\beta}')$  decreases as  $\alpha$  and  $\bar{\beta}'$  increase.

Thus, communication is preferred to delegation for a high enough  $\epsilon$ , and the more severe the political uncertainty (a higher  $\epsilon$ ) and the less severe the soft budget problem (a higher  $\alpha$ ) the more likely it is that seeking advice will be preferred. Proposition 4 summarizes the main finding of the paper, that the decision whether to delegate real authority or just asking for advice depends on the severity of the time inconsistency problem relative to the cost of political uncertainty. To get a more general understanding of this logic, though, we move to a more elegant framework in which  $\beta_g$  has a continuous distribution.

## 4.2 Continuous Distribution of Political Pressure

In this section, we assume  $\beta_g$  is a continuous random variable on the support  $[0,1]$ . That is,  $\beta_g$  can take on any value in the unit interval just as  $c$  can. Among other things, this implies that no matter what agent the government appoints, it cannot be sure of following the agent's advice. For now, we allow  $H$  to be any continuous distribution with full support. However, we continue to assume that  $c$  is uniformly distributed, so that the expected losses are easy to compute.

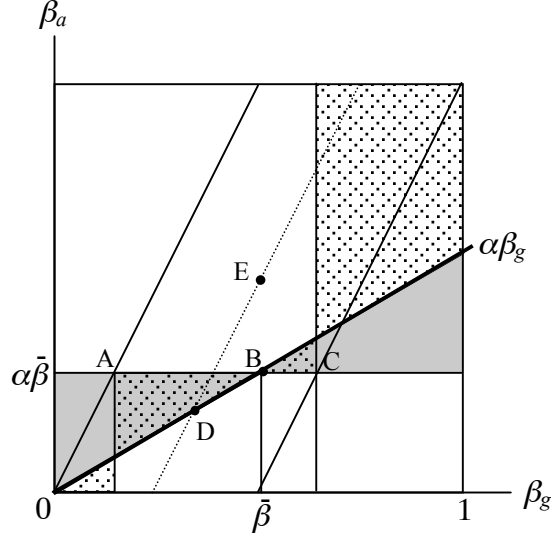
Under delegation of authority, the expected loss is

$$\Lambda^D(\beta_a) = \frac{1}{2} \int_0^1 (\alpha x - \beta_a)^2 h(x) dx \quad (18)$$

This is just the mean squared error between  $\beta_a$  and  $\alpha\beta_g$ . Minimizing  $\Lambda^D(\beta_a)$  yields the following results.

**Proposition 5** In the case of uniform  $G$  and an arbitrary continuous distribution of political pressure  $H$ , the optimal agent under delegation is given by  $\beta_a^D = \alpha\bar{\beta}$ . The expected loss of over- and under-protection is given by  $\Lambda(\beta_a^D) = \frac{\alpha^2}{2} \text{Var}(\beta_g)$ .

This solution is shown as point B in Figure 3. The error is the sum of the shaded triangles on either side of the ray representing the ideal agent.



**Figure 3.**

If the government seeks advice instead of delegating authority, the problem becomes one of choosing  $\beta_a$  so as to minimize,

$$\Lambda^C(\beta_a) = \int_0^{\frac{\beta_a}{2}} \frac{1}{2} (\alpha x)^2 h(x) dx + \int_{\frac{\beta_a}{2}}^{\frac{1+\beta_a}{2}} \frac{1}{2} (\alpha x - \beta_a)^2 h(x) dx + \int_{\frac{1+\beta_a}{2}}^1 \frac{1}{2} (1 - \alpha x)^2 h(x) dx \quad (19)$$

For any given  $\beta_a$ , there are three distinct intervals of  $\beta_g$ , corresponding to the three terms in (19). The first interval is  $[0, \beta_a/2)$ . If the government discovers that  $\beta_g$  is in this interval, it knows that its selected agent cannot credibly signal information that would make protection attractive. Thus, the government ignores the agent's advice and refuses to protect. The first term in (19) measures the loss of not protecting when the optimal ex ante decision rule would protect. Of course, the size of this loss depends on the choice of  $\beta_a$ . For the purpose of comparing these errors with those of the delegation solution, Figure 3 assumes  $\beta_a = \alpha\bar{\beta}$  (which is not necessarily the optimal expert). In this case, the relevant interval is everything to the left of point A. The corresponding error is the dotted region down in the lower left corner. The second interval is  $[\beta_a/2, (1 + \beta_a)/2]$ , between A and C. For  $\beta_g$  in this interval, the government follows the agent's advice and the resulting loss is the same as under delegation. Finally, for  $\beta_g$  in the third interval,  $((1 + \beta_a)/2, 1]$ , the government

ignores the agent's advice and protects. The third term in (19) measures the loss of protecting when the optimal ex ante decision rule would not protect. The error is shown as the dotted region in the upper right-hand corner of Figure 3.

Differentiating  $\Lambda^C(\beta_a)$  with respect to  $\beta_a$  gives the first order condition,

$$\int_{\frac{\beta_a}{2}}^{\frac{1+\beta_a}{2}} (\beta_a - \alpha x) h(x) dx - \frac{1-\alpha}{4} \left[ (1 - \beta_a^2) h\left(\frac{1+\beta_a}{2}\right) + \beta_a^2 h\left(\frac{\beta_a}{2}\right) \right] = 0 \quad (20)$$

The distribution of  $\beta_g$ , truncated by the boundaries of the credible communication set, is given by

$$\phi[x | \beta_a] \equiv \frac{h(x)}{H\left(\frac{1+\beta_a}{2}\right) - H\left(\frac{\beta_a}{2}\right)} I_{\left[\frac{\beta_a}{2}, \frac{1+\beta_a}{2}\right]}(x)$$

This enables us to rewrite (20) in a marginally more convenient form:

$$\beta_a = \alpha \int_{\frac{\beta_a}{2}}^{\frac{1+\beta_a}{2}} x \phi[x | \beta_a] dx + \frac{1-\alpha}{4} \left\{ (1 - \beta_a^2) \phi\left[\frac{1+\beta_a}{2}, \beta_a\right] + \beta_a^2 \phi\left[\frac{\beta_a}{2}, \beta_a\right] \right\} \quad (21)$$

Equation (21) reveals that the optimal agent under communication is determined by the sum of two terms, reflecting the losses within, and outside of, the credible communication set, respectively. The first term is ( $\alpha$  times) the expected value of  $\beta_g$  taken over the CCS. If we were to ignore losses outside of the CCS, this term alone would determine optimal choice of agent, because it minimizes the mean squared error relative to the optimal ex ante decision rule over this set. The second term is an adjustment which in the case of a soft budget is positive, reflecting losses outside of the CCS.

The intuition can be seen in Figure 3. The dotted line running up the spine of the CCS is the expected value of  $\beta_g$  taken over the CCS.<sup>13</sup> Ignoring errors outside of the CCS would yield an optimal expert at point D. Notice that this would be a more liberal agent than the optimal agent under delegation, which is already more liberal than the average government ex post (but identical to the average government ex ante). But consider the errors outside of the CCS. Because  $\alpha < 1$ , the error associated with ignoring the agent and protecting, in case of high  $\beta_g$  (top right), is greater than the error associated with ignoring the agent and not protecting, in case of low  $\beta_g$  (bottom left). To counter this bias, the government would like to increase the weight that the agent assigns to profits. By making the agent more protectionist, the government reduces the chances that it will

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<sup>13</sup>In general this is a curve. It is a straight line only in the case of a uniform  $h(\cdot)$ .

ignore the agent (and protect) when  $\beta_g$  is high. This pushes in the direction of making the optimal expert more protectionist, and thus more in line with the average government ex post, than the optimal agent under delegation. In general, the position of the optimal agent under communication, relative to the optimal agent under delegation, is ambiguous.

To make further progress we therefore need to add more structure to  $H$ . The simplest case analytically is when it is also uniform. In this case the solution to (21) is simply  $\beta_a^C = \frac{1}{2}$ , point E in Figure 3. Thus, the dampening effect is complete: the optimal agent under communication is entirely independent of  $\alpha$ . The optimal expert is always unbiased, while the optimal agent under delegation,  $\beta_a^D = \frac{\alpha}{2}$ , is biased according to the time-inconsistency problem. The fact that the optimal expert is unresponsive to the time-inconsistency problem does not imply that delegation is superior. Communication has the advantage that the government can ignore the expert when political factors weigh heavy. We can also calculate the expected losses, given by

$$\Lambda^D(\beta_a^D) = \frac{\alpha^2}{24} \quad (22)$$

$$\Lambda^C(\beta_a^C) = \frac{\alpha^2}{6} - \frac{\alpha 11}{32} + \frac{3}{16} \quad (23)$$

Thus, communication is strictly preferred to delegation for all  $\alpha \in (\frac{3}{4}, 1)$ .

Combining these result produces interesting predictions for a cross-section of different policies. For policies characterized by minor time-inconsistency, the government chooses communication with an unbiased expert. For policies with severe time inconsistency, the government delegates to a highly biased agent. As the threshold between the two is crossed, there is a discontinuous jump in the bias of the agent.

The uniform distribution may not be representative though, so we turn to a more general case. A complicating factor is that for most continuous distributions of political pressure, solving for the optimal agent under communication requires numerical methods. Here we present an exception, an example that admits a simple, closed-form solution to the problem but is flexible enough to illustrate all of the main conclusions obtainable from a wide class of unimodal distributions.

Suppose  $\beta_g$  takes on the value  $m$  with probability  $\theta$ , while with probability  $1 - \theta$ , it is drawn at

random from a uniform distribution on the interval  $[0, 1]$ . Thus, the c.d.f. of  $\beta_g$  is given by

$$H(x) = \begin{cases} (1 - \theta)x & \text{if } x < m \\ \theta + (1 - \theta)x & \text{if } x \geq m \end{cases} \quad (24)$$

Technically, this is not a continuous distribution; it is a mixture of continuous and discrete. The advantage of this distribution is that it allows us to vary the mean and variance, by varying the two parameters  $m$  and  $\theta$ , while still maintaining full support and uniformity in the tails. Uniformity in the tails is what enables a closed-form solution. The mean of  $\beta_g$  is  $\bar{\beta} = \theta m + (1 - \theta)\frac{1}{2}$ .

Under communication, assuming  $m \in \left(\frac{\beta_a}{2}, \frac{1+\beta_a}{2}\right)$ , the first-order condition (equation (20)) for the optimal agent becomes

$$\theta(\beta_a - \alpha m) + (1 - \theta) \int_{\beta_a/2}^{(1+\beta_a)/2} (\beta_a - \alpha x) dx - \frac{1 - \alpha}{4}(1 - \theta) = 0 \quad (25)$$

The first two terms in equation (25) represent the marginal effect of increasing  $\beta_a$  on losses occurring within the CCS. The last term is the net effect of increasing  $\beta_a$  on losses outside of the CCS. Note that this last term increases with the severity of the time inconsistency problem  $1 - \alpha$  and with the degree of uncertainty in  $\beta_g$ , as measured by  $1 - \theta$ .

Solving equation (25) gives the following expression for the optimal agent under communication

$$\beta_a^C = \lambda \alpha m + (1 - \lambda)\frac{1}{2} \quad (26)$$

where  $\lambda \equiv \frac{\theta}{\theta + (1 - \theta)(2 - \alpha)/4} \in (\theta, 1]$ . We see that the optimal agent under communication is just a weighted average of  $\alpha m$ , the optimal agent when  $\beta_g = m$  with certainty, and  $\frac{1}{2}$ , the optimal agent when  $\beta_g$  is distributed uniformly on  $[0, 1]$ .<sup>14</sup> Thus, contrary to the case of a pure uniform distribution of  $\beta_g$ , the optimal agent under communication now becomes more protectionist as  $\alpha$  increases. There are two other conclusions that follow directly:

**Proposition 6** In the case of  $G$  uniform and  $H$  given by (24): 1) for all  $\alpha$  and for all  $\bar{\beta} \geq \frac{1}{2}$ , the optimal agent under communication is more protectionist than the optimal agent under delegation; 2) for all  $\theta$ ,  $m$  and  $\alpha > \frac{10}{13}$ , the government prefers communication to delegation.

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<sup>14</sup>For this to be an equilibrium, it must be that  $m \in \left(\frac{\beta_a^C}{2}, \frac{1+\beta_a^C}{2}\right)$ . A sufficient condition is  $m \in \left(\frac{1-\theta}{4\alpha}, \frac{3+\theta}{4\alpha}\right)$ .



The first part of Proposition 6 establishes a sufficient condition for  $\beta_a^C > \beta_a^D$ . Basically, communication results in a more protectionist agent than delegation, if the government is, on average, protectionist. Thus, although not completely unbiased as in the pure uniform case, the optimal agent under communication does tend to be closer to the average position of the government than does the optimal agent under delegation.

To find the necessary condition, we solve for  $\beta_a^C = \beta_a^D$ , which gives a locus of points  $(\alpha, \bar{\beta})$  along which the two optimal agents share the same preferences,

$$\bar{\beta} = \frac{5\alpha - 2}{2\alpha(2 + \alpha)} \quad (27)$$

Note that equation (27) depends on  $\alpha$  and  $\bar{\beta}$  but not on the variance of  $\beta_g$ . This locus is shown in Figure 4 (gray line). To the left of this locus  $\beta_a^C < \beta_a^D$ , and to its right  $\beta_a^C > \beta_a^D$ . From this we see that if  $\bar{\beta} < \frac{1}{2}$ , it is possible that  $\beta_a^C < \beta_a^D$ , but only for high enough  $\alpha$ . To understand why this occurs only for high  $\alpha$ , it is useful to recall why  $\beta_a^C$  tends to be relatively high in the first place. As mentioned earlier, choosing a high  $\beta_a^C$  is a way of reducing the likelihood of ignoring the agent and protecting when the realization of  $\beta_g$  is high, as this is more costly than the alternative error (i.e., not protecting when  $\beta_g$  is low). The asymmetry between these two errors is due solely to the soft-budget problem. Diminishing the soft-budget problem (i.e., raising  $\alpha$ ) undercuts this incentive to hire a protectionist agent.

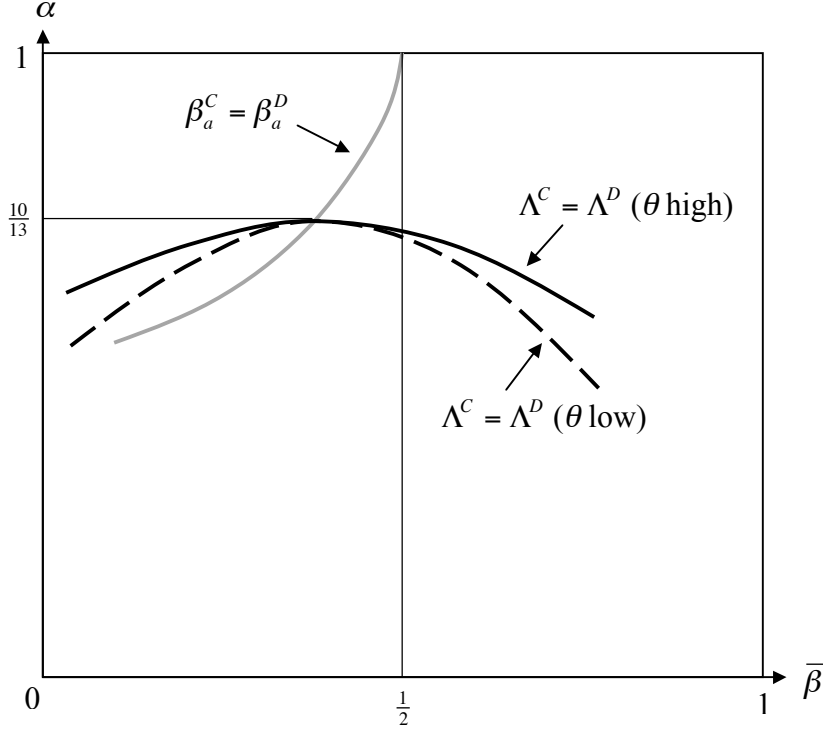


Figure 4.

The second part of Proposition 6 establishes a sufficient condition for  $\Lambda^D - \Lambda^C > 0$ . As before, communication is strictly preferred to delegation when the time inconsistency problem is not too severe. This follows directly from the expression,

$$\Lambda^D - \Lambda^C = \frac{1}{2} \frac{\theta}{\lambda - \theta} \left[ (\beta_a^C - \beta_a^D)^2 + (13\alpha - 10) \frac{1}{16} (1 - \theta) (1 - \lambda) \right]$$

To illustrate the necessary conditions, Figure 4 shows two loci, for two different values of  $\theta$ , along which  $\Lambda^D = \Lambda^C$ . At all points above one of these loci, communication is strictly preferred to delegation. Note that the set of parameters for which communication is preferred increases as  $\theta$  decreases, i.e. as the variance of the distribution increases. This is intuitive, for as  $\theta$  nears 1, the likelihood that  $\beta_g$  is extreme (and hence that the government would choose to ignore the agent) becomes small. Considering that the ability to ignore the agent is the only reason communication is preferred to delegation, reducing this likelihood reduces the relative advantage of communication.

## 5 Conclusions

The generic problem we have analyzed in this paper is a principal's decision whether to delegate real authority to an informed agent or only seek the agent's advice (communication). What is different from the existing literature is that we do this in an environment with time inconsistent preferences. By doing so we have bridged two previously disjoint literatures on delegation, one relying on a strategic motive and the other on an asymmetric information motive. This not only makes it possible to analyze a richer set of situations, but it also makes it possible to relax some rather strong assumptions in the existing literature. In particular, we do not need to impose any restrictions on the preferences of the available set of experts in order to generate interesting results, as is done in the literature assuming asymmetric information.

Our analysis is general and can be applied to any organization, but we are particularly interested in the organization of public policymaking between politicians and public agencies. Our first reason is that policymaking is an environment in which we know time inconsistency is a prevalent problem, and, as outlined in the Introduction, appointments to key positions in public agencies is an important tool for the administration in power to influence policy outcomes. Hence, it is an area in which our key extensions make a lot of sense. The second reason is that uncertainty about the preference distance between the principal and the agent is a key to understand why communication is sometimes preferred to delegation even in the presence of a time inconsistency problem, and there is a natural explanation for this uncertainty in the political context. Politicians generally have preferences over policy outcomes, and they appoint agents who can help them realize those goals. However, politicians also care about getting reelected, so what turns out to be their optimal policy in the end will also depend on shifts in public opinion. These shifts are usually hard to predict though, both in strength and direction. It follows that the government when they appoint their agent faces uncertainty with respect to how closely matched the preferences really are going to be.

The first main finding of the paper is that the principal can do equally well with communication as he can do with delegation as long as the time inconsistency problem is not too severe. With communication, the agent will bias information to influence the principal's decision, something that is known by both the principal and his counterpart in the time inconsistency problem. The choice of agent thus effectively work as a commitment device for the principal, determining the information

set on which he will make his decision. This mode of commitment requires that communication is credible, though, which becomes a binding constraint when the inconsistency problem becomes too severe. This result suggests that principals that are formally constrained in their ability to delegate real authority may be able to solve a time inconsistency problem anyway by choosing agents of expertise that are known to have certain preferences. For instance, delegating decisions over fiscal policy to politically unaccountable bureaucrats is generally deemed in conflict with a democratic constitution. But our first result suggests for instance that politicians could be able to at least partly solve a political business cycle problem in fiscal policy by appointing known fiscal conservatives to advisory positions.

The second main finding of the paper is that the principal may even strictly prefer communication if there is prior uncertainty over the preference distance between the principal and the agent (political uncertainty). With political uncertainty, the principal must accommodate all potential outcomes in his choice of agent, trading off over-investment in some states of the world against under-investment in others. The benefit of communication is that the need to accommodate becomes smaller, because the principal has the option to ignore the agent's message and make his decision based on his prior. In the binary case, the principal can appoint the optimal agent in one state of the world and then base his decision on his prior in the other, rather than choosing the best compromise for both states. The choice of organizational design then becomes a matter of the degree of political uncertainty relative to the severity of the time inconsistency problem. This result can help us better understand how firms as well as politics are organized. As pointed out in the Introduction, there is a large degree of variation in the choice between delegation and communication both between different organizations, and within organizations for different tasks. The extent to which the existing variation fits the predictions of the existing model goes beyond the ambition of this paper. However, it is indeed an interesting question for future research.

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